

RECEIVED  
CENTRAL FAX CENTER

U.S.S.N. 10/700,973

AUG 20 2007

REMARKS

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended to further clarify Applicants invention. No new matter has been added.

Support for the claim amendments are found in the original and previously presented claims, the Figures, and in Specification at:

Beginning at page 3, line 5:

"An important feature of the invention is that minimum use is made of the fuel cell to maintain the battery pack's SOC charge within a desired window. The control strategy shares the power sourced from the fuel cell and the battery pack to the load in a manner that optimizes the use of the fuel cell, thereby conserving fuel and lengthening the service life of the battery."

Beginning at page 8, line 6:

"if the power required by the system loads 14 is equal to or greater than the maximum power available from the fuel cell 10 and the fuel cell is operating at its maximum power output. Simulation testing has shown that this control method considerably decreases the power supplied by the fuel cell 10 over time, when compared to the use of the charge carrier 16 only as an additional power source for fuel cell short falls, and as a sink for regenerative braking. This control strategy would therefore lead to a proportional increase in fuel economy."

Rejections Under 35 USC § 102

U.S.S.N. 10/700,973

1. Claims 1-6 are rejected under 35 USC § 102(e) as being anticipated by KOPF (US 6,744,237).

KOPF discloses a hybrid power system for a vehicle (load) that includes a fuel cell and an energy storage device. IN the method of Kopf, **all the power to the load is supplied by the energy storage device if the state of the charge (SOC) of the energy storage device is greater than or equal to a predetermined value.** When the SOC falls below the predetermined value, the fuel cell system supplies at least a portion of the power to the load (see Abstract; col 1, lines 30-40)). The fuel cell **supplies all the power to the load when the SOC falls below a second predetermined value** (col 1, Lines 42-56; col 4, lines 30-57). When the SOC falls between the first and second predetermined values, the fuel cell may supply all power to the load long as the power requirement does not exceed an optimal power output of the fuel cell (col 1, lines 49-56). When the load (power) requirement exceeds the optimal power output of the fuel cell, **the energy storage device provides the additional power required** (col 4, lines 30-57). When the SOC is less than a predetermined upper SOC value, the fuel cell discharges to charge the storage device. (col 4, lines 55-57).

Thus, Kopf fails to disclose several elements of Applicants invention including those elements in **bold type**:

"A method of controlling the operation of hybrid power system having a fuel cell and a charge carrier for supplying power to a load, comprising the steps of:

(A) determining a state of charge of the charge carrier;

U.S.S.N. 10/700, 973

(B) setting a power output of the charge carrier to output power at a first value if the power required by the load is less than the maximum power output available to be supplied from the fuel cell wherein the fuel cell is operating at less than said maximum power output; and,

(C) setting the power output of the charge carrier to output power at a second value if the power required by the load is equal to or greater than the maximum power output available to be supplied from the fuel cell wherein the fuel cell is operating at said maximum power output."

Thus, Kopf nowhere discloses or suggests operating both the fuel cell and the energy storage device (charge carrier) wherein the fuel cell is operating at less than said maximum power output as in B) above in Applicants claims, Kopf only discloses operation of both the energy storage device and fuel cell where it is required to supplement the fuel cell to meet load requirements.

In other operating cases (SOC is above an upper value or falls between intermediate values), the charge carrier or the fuel cell, respectively, provide all of the operating power to meet the load requirements.

Thus, Kopf is clearly insufficient to anticipate Applicants invention.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or

U.S.S.N. 10/700,973

inherently described, in a single prior art reference."

*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

2. Claims 1-6 are rejected under 35 USC § 102(e) as being anticipated by Iwasaki (US 2002/0162694).

Iwasaki discloses a system where a fuel cell operates under a constant load regardless of the load requirements when the load demand is smaller than a predetermined load and operates the fuel cell under a determined load where the load demand is larger than the predetermined load (paragraph 0007) supply all the power to a load (vehicle) when the power requirements are below a predetermined value and where excess power is stored in a battery (charge carrier). The battery (charge carrier) operates to supplement the fuel cell to supply power where the load requirements exceed the capacity of the fuel cell (paragraph 0028) and stores excess energy where the load demand is less than the capacity of the fuel cell (paragraphs 0028, paragraphs 0042-0047). **If the load demand is less than the fuel cell capacity the battery does not operate to supply power (paragraph 0044).**

Thus, Iwasaki nowhere discloses or suggests operating both the fuel cell and the battery (charge carrier) wherein the fuel cell is operating at less than said maximum power

RECEIVED  
CENTRAL FAX CENTER

AUG 20 2007

U.S.S.N. 10/700,973

output as in B) above in Applicants claims. Rather, Iwasaki only discloses operation of both the battery and fuel cell where operation of the battery is required to supplement the fuel cell to meet load requirements.

In all other operating cases, the fuel cell of Iwasaki provides all of the power to meet the load requirements.

Thus, Iwasaki is clearly insufficient to anticipate Applicants invention.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

#### Conclusion

Since the cited references fail to produce or suggest Applicants invention, they are therefore insufficient to make out a *prima facie* case of anticipation with respect to Applicants independent and dependent claims.

Applicants have amended the claims to further clarify their invention.

U.S.S.N. 10/700,973

Based on the foregoing, Applicants respectfully request favorable reconsideration of Applicants claims and submit that Applicants Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention as claimed is not in a condition for allowance for any other reasons, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,  
Tung & Associates

Randy W. Tung  
Reg. No. 31,311  
Telephone: (248) 540-4040